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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

| | | |
|---|---|---|
| In re Application of: | ) | |
| | ) | |
| Byeong-Dae CHOI | ) | Confirmation No. 5637 |
| | ) | |
| Application No.: 10/032,056 | ) | Group Art Unit: 2815 |
| | ) | |
| Filed: December 31, 2001 | ) | Examiner: M. Warren |
| | ) | |
| For: ARRAY SUBSTRATE FOR A LIQUID CRYSTAL DISPLAY DEVICE AND METHOD OF MANUFACTURING THE SAME | ) | **Mail Stop Appeal Brief - Patents** |

Commissioner for Patents
U.S. Patent and Trademark Office
**Mail Stop Appeal Brief - Patents**
Alexandria, VA 22314

## APPELLANT'S REPLY BRIEF TRANSMITTAL FORM

1. Transmitted herewith is the Appellant's Reply Brief Under 37 C.F.R. § 1,193(b)(1) which is being submitted in response to the Examiner's Answer mailed June 16, 2006.

2. Additional papers enclosed.

- ☐ Drawings: [ ] Formal [ ] Informal (Corrections)
- ☐ Information Disclosure Statement
- ☐ Form PTO-1449, ___ references included
- ☐ Citations
- ☐ Declaration of Biological Deposit
- ☐ Submission of "Sequence Listing", computer readable copy and/or amendment pertaining thereto for biotechnology invention containing nucleotide and/or amino acid sequence.

3. Oral Hearing Under 37 C.F.R. 1.194

☐ Oral hearing is hereby requested.
☐ Fee under 37 C.F.R. 1.17(d) is enclosed.

4. Extension of time

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

☐ Appellant petitions for an extension of time, the fees for which are set out in 37 CFR 1.17(a)-(d), for the total number of months checked below:

| Total months requested | Fee for extension | [fee for Small Entity] |
|---|---|---|
| ☐ one month | $ 120.00 | $ 60.00 |
| ☐ two months | $ 450.00 | $ 225.00 |
| ☐ three months | $ 1,020.00 | $ 510.00 |
| ☐ four months | $1,590.00 | $ 795.00 |
| ☐ five months | $2,160.00 | $1,080.00 |

Extension of time fee due with this request: **$0.00**

☒ If an additional extension of time is required, please consider this a Petition therefor.

5. Fee Payment

☒ No fee is to be paid at this time.

☐ Appellant's Brief filing fee of **$ 00.00**.

☐ The Commissioner is hereby authorized to charge **$ 0.00** for the Appellant's Brief filing fee to Deposit Account No. 50-0310.

☒ The Commissioner is hereby authorized to charge any fees including fees due under 37 CFR 1.16 and 1.17 which may be required, or credit any overpayment to Deposit Account No. 50-0310.

Respectfully submitted,

MORGAN, LEWIS & BOCKIUS

By: _____
Robert J. Goodell
Reg. No. 41,040

Date: August 16, 2006

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**APPELLANT'S REPLY BRIEF UNDER 37 C.F.R. § 1.193(b)(1)**

Appellant filed a Notice of Appeal in the above-identified patent application on January 30, 2006. Appellant filed an Appeal Brief on March 22, 2006. This Reply Brief responds to the arguments raised in the Examiner's Answer mailed June 16, 2006. This Reply Brief is timely filed within the period for response which extends through August 16, 2006.

**Summary of Examiner's Answer**

The Examiner's Answer responds to Appellant's arguments presented in the Appeal Brief filed on March 22, 2006. The Examiner's Answer appears to be predicated upon a single issue: whether modifying Applicant's Related Art with the teachings of Kakuda et al. renders Appellant's claimed invention, as recited by at least independent claim 1, obvious.

**Appellant's Reply**

In the Examiner's Answer, the Examiner apparently takes the position (see Section (10) entitled "Response to Argument" beginning on page 5 of the Answer) that "Kakuda was cited to cure the deficiencies of the APAF and teach a metal layer formed on an entire surface of the data line." The Answer cites specific portions of Kakuda et al. to support the Examiner's allegation that modifying Applicant's Related Art with the teachings of Kakuda et al. renders Appellant's claimed invention, as recited by at least independent claim 1, obvious.

First, the Answer states:

> "Kakuda describes the invention's benefit as whole in column 6, line 61 through column 7, line 7. From those passages it can be determined that the data lines of the invention have reduced manufacturing steps since Kakuda states (col. 7, lines 4-7) that 'simultaneous formation of the windows for the connection of the storage capacitance lines and the windows for the connection of the matrix lines (data lines, scan lines, etc) of the thin film transistors minimizes the number of manufacturing steps involved and hence keeps down manufacturing costs.'"

However, Appellant asserts that the above passage is not a true and correct quote from Kakuda et al. at column 7, lines 4-7. Specifically, nowhere does Kakuda et al. explicitly recite "...for the connection of the matrix lines *(data lines, scan lines, etc)* of the thin film transistors...," (emphasis added). Moreover, Appellant asserts that the above passage fails to

provide any motivation *whatsoever* with which to form a metal layer "on an entire surface of each of the data lines and at peripheral portions of the drain electrode," as explicitly required by independent claim 1. Thus, Appellant respectfully asserts that the Final Office Action fails to establish a *prima facie* case of obviousness with regard to at least independent claim 1.

In addition, Appellant asserts that the allegation that in Kakuda et al. "it can be determined that the data lines of the invention have reduced manufacturing steps" is actually a perversion of what Kakuda et al. actually discloses. Specifically, Kakuda et al. discloses (col. 7, lines 2-7) that it is the *simultaneous formation of windows* that minimizes the number of manufacturing steps, and **not** the formation structure of the data lines. Accordingly, Appellant asserts that the Examiner has intentionally mischaracterized Kakuda et al. in order to allege obviousness. Thus, Appellant respectfully asserts that the Final Office Action further fails to establish a *prima facie* case of obviousness with regard to at least independent claim 1.

Second, the Answer states:

> "Kakuda also specifically states (col. 7, lines 10-17) that the data lines 11 may be formed of aluminum (Al), tungsten (W), etc....' and that 'Aluminum is particularly suitable for the lines 11, 13, and 29 because it is low in electrical resistance, and it is also suitable for light blocking layers 18 because of it high reflectivity to light'."

However, when Kakuda et al. is taken in complete context (col. 7, line 8 to col. 8, line 16), it is very clear that Kakuda et al. actually teaches the deficiencies of using layered conductive structures. Specifically, Kakuda et al. discloses that an aluminum thin film is defective in that hillocks are readily formed on its surface, and that a molybdenum film causes the breakage of wires in upper layers. Moreover, Kakuda et al. continues to disclose that using

laminated conductive structures in an active matrix LCD cause corrosion due to galvanic action and that side-etching may occur forming an overhang. Accordingly, although Kakuda et al. may disclose the use of laminated conductive structures, Kakuda et al. explicitly addresses the fundamental problems with using such laminated conductive structures. Thus, Appellant asserts that Kakuda et al. actually teaches away from using laminated conductive structures, and thus, fails to provide any proper motivation for modifying Applicant's Related Art. Thus, Appellant respectfully asserts that the Final Office Action further fails to establish a *prima facie* case of obviousness with regard to at least independent claim 1.

Third, the Answer states:

> "It is agreed that Kakuda discloses the disadvantages of using aluminum or molybdenum laminated conductive lines, but that does not necessarily mean that Kakuda is teaching away from such usage. If Kakuda were to teach away from the laminated structure, Kakuda would specifically state that the invention does not use the laminated structure at all. In fact, despite the disadvantages, Kakuda still uses the aluminum-molybdenum laminated conductive lines."

However, Appellants respectfully assert that is exactly what Kakuda et al. does. Kakuda et al. explicitly discloses the structure shown in FIGs. 3 and 4 at col. 4, line 12 to col. 7, line 7, including a data line comprising an ITO layer 11a and a molybdenum-based alloy layer 11b. Then, Kakuda et al. continues from col. 7, line 8 to col. 8, line 16 explicitly detailing the deficiencies of using the ITO/molybdenum/aluminum laminated structures. Finally, Kakuda et al. goes on, from col. 8, line 19 to col. 14, line 3, to disclose different experiments to overcome the deficiencies of using the ITO/molybdenum/aluminum laminated structures. Accordingly, Appellant asserts that Kakuda et al. actually teaches away from using laminated conductive structures, and thus, fails to provide any proper motivation for modifying

Applicant's Related Art. Thus, Appellant respectfully asserts that the Final Office Action fails to establish a *prima facie* case of obviousness with regard to at least independent claim 1.

Fourth, the Answer states:

> "The appellant even acknowledges that laminating a data line is a well known practice (see the appellant's brief page 9, 2nd paragraph) by stating that 'Kakuda et al. actually discloses the disadvantages of using the known practice of forming laminated conductive lines in LCD device'."

However, Appellant asserts that the Examined has perverted that which Appellant has stated. Specifically, as evidenced by the complete disclosure of Kakuda et al., it is Kakuda et al. that explicitly discloses that which is the known practice of forming laminated conductive lines in an LCD device. Moreover, Appellant asserts that statements presented in Appellant's Appeal Brief are inapposite to the actual complete disclosure of Kakuda et al., as detailed above. Specifically, since Kakuda et al. actually teaches away from using laminated conductive structures for data lines in an LCD device, any statements to the contrary do not negate the fact that Kakuda et al. explicitly explains why laminated conductive structures for data lines in an LCD device is wholly undesirable. Thus, Appellant respectfully asserts that the Final Office Action fails to establish a *prima facie* case of obviousness with regard to at least independent claim 1.

Fifth, the Answer states:

> "Furthermore, a reference teaching away from using a known structure, material, or process does not necessarily mean that the appellant's claimed invention is patentable over the cited art, it just means that the inventive features of the appellant's claimed invention is known in the art and is not desirable."

However, as directed by MPEP 2144:

> "The strongest rationale for combining references is a recognition, expressly or impliedly in the prior art or drawn from a convincing line of reasoning based on the established scientific principles or legal precedent, that some advantage or expected beneficial result would have been produced by their combination. *In re Sernaker*, 702 F.2d 989, 994-95, 217 USPQ 1, 5-6 (Fed. Cir. 1983)."

Similarly, as directed by MPEP 2145(X)(D)(2):

> "It is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983)."

Accordingly, since (1) Kakuda et al. fails to provide any proper motivation with which to modify Appellant's Related Art, (2) the Examiner has failed to provide any convincing line of reasoning based on established scientific principles or legal precedent that some advantage or expected beneficial result would have been produced by their combination, and (3) Kakuda et al. actually teaches away from the use of using laminated conductive structures for data lines in an LCD device, then Appellant respectfully asserts that the Final Office Action fails to establish a *prima facie* case of obviousness with regard to at least independent claim 1.

* * * *

In view of the foregoing, as well as arguments presented in Appellant's Appeal Brief, Appellant respectfully requests the reversal of the Examiner's rejection and allowance of the pending claims. If there are any other fees due in connection with the filing of this Reply Brief, please charge the fees to our Deposit Account No. 50-0310.

If a fee is required for an extension of time under 37 C.F.R. §1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account No. 50-0310.

Respectfully submitted,

**MORGAN LEWIS & BOCKIUS LLP**

By: _____
Robert J. Goodell
Reg. No. 41,040

Dated: August 16, 2006

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